097.3
Z1092
No. 52 SECRET

R&A-52

157

CLASSIFICATION
changed to
RESTRICTED
by authority of
OIR/DRM
by MN
Date July 29, 1949

COORDINATOR OF INFORMATION

British Empire Section

Special Memorandum No. 31

ECONOMIC ESTIMATE OF CALCUTTA AND ENVIRONS

DEPARTMENT OF STATE
REFERENCE DIVISION
FILE COPY
PLEASE RETURN
REF

DECLASSIFIED: Authority letter of
1-11-72 from W.H. Franklin, State Dept.
By Adell N. Terry Jr. Date 12/15/72

JANUARY 22, 1942

52571

SECRET

COORDINATOR OF INFORMATION

British Empire Section

Special Memorandum No. 31

ECONOMIC ESTIMATE OF CALCUTTA AND ENVIRONS

JANUARY 22, 1942

SECRET

SUMMARY

Calcutta, greatest city of India in population, commerce, finance, and culture, is also capital of the poverty-stricken province of Bengal.

The Calcutta area contains almost half a million factory workers, and is less than 200 miles from India's coal, iron, and steel centers. Calcutta's heavy industries are limited to railway workshops, shipyards, and ordnance factories. Jute mills dwarf all other light industry.

Bengal's rice production is huge, but insufficient for the 60,000,000 Bengalis crowded into the province. The 24,000,000 cattle are not a source of meat because the Hindus consider the cow a sacred animal and would fiercely oppose the slaughter of cattle.

Transport facilities are good; eleven railroad tracks and six good roads lead out of Calcutta.

Port facilities are not treated in this report.

Two recent memoranda by Mr. A.C.B. Symon, Secretary of the Purchasing Mission from India, are attached as Supplements because of their valuable data on steel and munitions production and railway traffic in India.

SECRET

TABLE OF CONTENTS

Introduction

Industrial Production

- Heavy Industry
  - Coal Iron and Steel
  - Engineering and Ordnance
- Textiles and Light Industry

Agriculture Livestock and Food Habits

Transportation

- Railroads
- Roads

Supplement

- "Steel for India"
- "Railway Freight Traffic in India"

British Empire Section
Special Memorandum No. 31
January 22, 1942

SECRET

ECONOMIC ESTIMATE OF CALCUTTA AND ENVIRONS

I. INTRODUCTION

Calcutta is the premier city of India. It was the original center for British control of India, and today is the commercial, financial, and cultural metropolis. The chief coal, iron, and steel works of India are less than 200 miles away, and are directed from Calcutta; while the principal government ordnance factories are just outside the suburbs. Although second to Bombay as a port, Calcutta is the country's largest railway center. The population of Calcutta is 2,100,000, outnumbering Bombay by some 600,000.

Calcutta, furthermore, is the capital of the province of Bengal, one of the most densely populated areas in the world. 60,000,000 people are crowded into 83,000 square miles (the size of Kansas). The population is undernourished and sickly (60% are said to suffer from malaria annually), rent by economic dissension. The two religious groups, Hindus and Moslems, divide the population almost evenly, and quarrel bitterly.

II. INDUSTRIAL PRODUCTION

Bengal leads all the other Indian provinces in number of factory workers -- 563,000. Of these, more than 80% (465,000), are concentrated in metropolitan Calcutta (Calcutta and adjacent areas of the 24 Parganas, Howrah, and Hooghly Districts.)

A. HEAVY INDUSTRY

1. Coal, Iron, and Steel. Though the principal coal mines, and iron and steel works are all more than 100 miles from Calcutta, being located in western Bengal and eastern Bihar, they should be treated here because the railways, railway workshops, ordnance factories, shipyards, and engineering shops of Calcutta all depend on them.

The chief coal mines lie between the railroad junctions of Ondal and Gomoh, 110 and 175 miles from Calcutta, respectively. The mines in this area yielded 23,000,000 tons of coal in 1938.

To the south of the coal fields, at Tatanagar (Jamshedpur), a town 150 miles due west of Calcutta, is the

huge Tata iron and steel works, said to be the largest in the British Empire. In the midst of the coal fields, at Asansol, is the iron plant of the Indian Iron and Steel Company; while a few miles west of Asansol, at Kulti, is the small works of the Bengal Iron Company. These plants turned out more than 1,500,000 tons of pig iron in 1938; they are now being expanded, to increase their output to 2,000,000 tons annually.

The only large steel plant in India is the Tata works at Tatanagar. It produced 700,000 tons of finished steel in 1938-39. In addition, a small steel plant was set up in 1934-35 at Belur on the west bank of the Hooghly River, north of Calcutta. An expansion program, described in the Supplement to this Memorandum, is expected to lift the production of steel in India to 1,250,000 tons, by the middle of 1942.

2. Engineering and Ordnance. The number of firms engaged in general engineering in the Calcutta area is small and in 1938 they employed only 25,000 workers. Their chief function is the maintenance of other industries, rather than independent production of their own. Coach building and motor car repairing, for example, together em-

ployed less than 2,000 workmen. Railway workshops close to Calcutta employed 12,000, shipyards 15,000, and government ordnance factories 7,000. Seven of the railway workshops are in the Howrah District, while five are in the Hooghly District to the north. Perhaps the best known of these is the extensive passenger and freight car works of the East Indian Railway at Liluah, three miles north of Howrah Station. Of the arsenals, the Gun and Shell Factory is at Cossipore, on the east bank of the Hooghly just north of Calcutta, while both the Rifle Factory and the Metal and Steel Factory are in Ichapur (Ishapore), twelve miles further north.

Since the war began in 1939, much equipment has been added to these arsenals, including a new 2000 ton forging press, a new 28" rolling mill, a new 10" mill, and an Electric Gun Heat Treatment Plant. At the Tata works, furthermore, a Wheel and Tyre mill, an axle plant, and a new bullet mill have been added. Details on new ordnance factories now in construction, on railway workshops and other plants taken over for munitions production, and on total output of war materials will be found in the Supplement at the end of this report.

B. TEXTILES AND LIGHT INDUSTRY.

1. Textiles. Bengal has practically a world moncpoly in the production of jute, and the world's greatest concentration of jute mills is the Calcutta area, where 280,000 workers are employed in 100 factories. These mills line the banks of the Hooghly above and below Calcutta. Other textiles are relatively insignificant: 23 cotton mills employ 24,000 workers; 6 silk mills have 1900 workmen; and 26 hosiery mills engage 1750 hands. In terms of output, 1,550,000,000 yards of jute, and 46,000,000 pounds of cotton yarn were produced in 1938-1939.

2. Light Industry. Calcutta has the wide range of light industries that are commonly found in great centers: Chemical works, expecially the manufacture of matches, employed 16,000 in 1938; food, drink, and tobacco 13,000; paper and printing 11,000; all other light industry 20,000.

C. AGRICULTURE, LIVESTOCK, AND FOOD HABITS.

Calcutta is in the midst of one of the world's greatest rice-growing areas, for Bengal alone produced 7,500,000 tons of rice in 1938-39. Although the rice yield dwarfs all other food crops, these are by no means insignificant. In 1938-39 the output of raw sugar amounted to 439,000 tons; rape and mustard seed 152,000 tons; gram 97,000 tons; wheat, barley, and maize together 97,000 tons; tea 106,000,000 lbs.

At first glance, the livestock figures are even more imposing than those for food crops. Bengal had a total of 31,400,000 head of livestock in 1929-30, and the number is believed to have increased in the last dozen years. Cattle in 1929-30 amounted to 24 million, buffaloes to more than 1,000,000, and goats to almost 5,500,000. The Hooghly District of the Calcutta area and the Jessore and Burdwan Districts (northeast and northwest of Hooghly, respectively) together had more than 2,500,000 head of cattle.

Despite these impressive statistics on foodstuffs and livestock, the people of Bengal suffer from a food

shortage which is little short of desperate. The total amount of food produced simply is not enough for the 60,000,000 Bengalis. If the population were deprived of a significant percentage of the food grown in Bengal, the inevitable result would be a sharp rise in sickness, disease, and starvation.

The huge surplus of livestock might seem to furnish an alternative source of food. But to the Hindus, who comprise almost one-half of the population of Bengal and more than three-quarters of the population of India, the cow is a sacred animal which cannot be killed. Any effort to use the millions of surplus cattle of Bengal as provisions for troops would arouse the fiercest resentment not only in Bengal, but throughout India.

D. TRANSPORTATION

1. Railroads. Calcutta is served by a fairly dense network of railroads, all of them the 5'6" broad Indian gauge. Five tracks of the largest railway in India, the East Indian Railway Company, leave Calcutta from Howrah Station and proceed north and northwest to the Ganges Valley, towards Allahabad and Delhi. Two tracks of the Bengal-Nagpur Railway proceed southwest from Howrah Station to Midnapore. The five tracks of the Eastern Bengal Railway all leave from Sealdah Station, in the eastern part of Calcutta. Two tracks go in a northern direction towards the center of Bengal; one track proceeds northeast to Jessore; the last two start in a southern direction, then divide, one going southeast to Port Canning and the other southwest to Diamond Harbour.

Besides these lines, there is a system of broad-gauge lines to the docks, and four narrow gauge lines (2' and 2'6") running into the suburbs. Two railway bridges over the Hooghly River, one about four miles north of Calcutta and the other 18 miles further north, permit trains of the East Indian line and the Eastern Bengal line to use each other's tracks.

2. Roads. Six good roads run from Calcutta. The best of these is the famous Grand Trunk Road, which proceeds north to Chinsura and then northwest to Asansol, Benares, and Delhi. A short but good road runs straight north from Calcutta for 25 miles along the east bank of the Hooghly to Kanchrapara, where it turns east. In the northeast direction, a good road connects Calcutta with Jessore, 75 miles away. To the southeast, a road runs to Port Canning; and to the southwest another road runs to Falta, where the Damodar River empties into the Hooghly. Finally, another good road connects Calcutta with Midnapore, about 75 miles to the west. A number of minor roads provide connections between these main routes.

SECRET

PRINCIPAL SOURCES

Report on the Factories Act, 1938, Government of Bengal Alipore 1939

Estimates of Area and Yield of Principal Crops in India, 1938-39, Department of Commercial Intelligence and Statistics, Delhi, 1940.

Statistical Abstract for British India, 1935-36, Department of Commercial Intelligence and Statistics, Delhi 1938.

Peace Establishments, India, 1932, Vol. III, Army Department, Delhi 1932.

"Steel for India," Report by A. C. B. Symon, Secretary, Indian Purchasing Mission, Washington, 1942.

Indian Year Book 1940-41, Bombay 1941

Industrial Organization in India, P. S. Lokanathan, London, 1935.

Food Planning for Four Hundred Millions, R. Mukerjee, London 1938.

Railway Map of India, 1938, Railways Administration Report, Delhi 1938

Map of Bengal, Surveyor-General of India, Calcutta 1937

Road Map of India, Surveyor-General of India, Surveyor-General of India, 1939.

SECRET

PRINCIPAL SOURCES

Report on the Factories Act, 1938, Government of Bengal Alipore 1939

Estimates of Area and Yield of Principal Crops in India, 1938-39, Department of Commercial Intelligence and Statistics, Delhi, 1940.

Statistical Abstract for British India, 1935-36, Department of Commercial Intelligence and Statistics, Delhi 1938.

Peace Establishments, India, 1932, Vol. III, Army Department, Delhi 1932.

"Steel for India," Report by A. C. B. Symon, Secretary, Indian Purchasing Mission, Washington, 1942.

Indian Year Book 1940-41, Bombay 1941

Industrial Organization in India, P. S. Lokanathan, London, 1935.

Food Planning for Four Hundred Millions, R. Mukerjee, London 1938.

Railway Map of India, 1938, Railways Administration Report, Delhi 1938

Map of Bengal, Surveyor-General of India, Calcutta 1937

Road Map of India, Surveyor-General of India, Surveyor-General of India, 1939.

SECRET

Supplement No. I

STEEL FOR INDIA

Memorandum

by

A. C. B. SYMON
Secretary Indian
Purchasing Mission.

January 7, 1942

SECRET

STEEL FOR INDIA

The following statement may be found useful in connection with the consideration of the attached paper.

(1) Programme of overall requirements:

Normal requirements for 12 months		War requirements for 12 months commencing 1st January, 1942.	
Source	Tonnage	Source	Tonnage
Indian Production	750,000	Indian Production	1,038,000
United Kingdom	150,000	U.S.A.	220,500
European Countries other than U.K.	100,000		
U.S.A. and other non-European Countries	50,000		
Total	1,050,000		1,258,500

(2) Analysis of 6 months' import requirements by products:

Class of Steel	Tonnage
(a) Ingots, billets, etc.	25,000
(b) Plates, etc.	100,000
(c) Squares, hexagons, flats, etc.	10,000
(d) High speed, alloy & carbon tool steel sections	500
(e) Sheets	5,000
(f) Tubes and pipes	15,000
(g) Hoops, strip	8,000
(h) Steel bolts, nuts, studs, washers, etc.	10,000
(i) Railway springs	2,500
(j) Wire rods, etc.	15,000
(k) Wire nails, wire staples, etc.	8,000
(l) Wire rope, etc.	4,000
(m) Steel forgings	nil
(n) Tinplates, terne plates, etc.	12,500
(o) Wheels, tyres, axles, etc.	2,500
(p) Rolling rolls for steel works	2,500
Total	220,500

(3) Allocation of steel for the fourth quarter of 1941 (in tons per annum) - -

		Tons	
Direct War Requirements	Director-General, Munitions Production	210,000	
	Engineer-in-Chief, Army Headquarters	340,000	
	Royal Indian Navy	43,000	
	Master General of Ordnance	153,000	
			746,000
Railway and other essential requirements	Railways	139,000	
	Commerce and Labor Departments	153,000	
	Total		1,038,000

SECRET

STEEL

1. In view of the outbreak of hostilities in the Far East it is unnecessary in this note to stress the vital part which India must play in the war sphere. It will, perhaps, suffice to point out that situated as she is, India must be the pivot for supply purposes in respect of both the East and the West, and it is self-evident that her capacity for the production of war material must be maintained at the highest level. Steel is an essential element in the production of all war supplies.

2. Before the war India produced little more than mild steel, structurals, plates, sheets, rails, tinplate and bar and, apart from small quantities of special ordnance steel produced in the Government Metal and Steel Factory, the country had to rely on imports for all steel requirements other than mild steel.

3. Annual pre-war production of finished steel was in the region of 750,000 tons. Imports were of the order of 300,000 tons a year. This meant that with India's own production the country's pre-war civil and railway requirements were about 1,050,000 tons a year.

4. Since the outbreak of war India's production of finished steel has been increased and now stands at about 1,000,000 tons a year. Details are given in Appendix 'A'. Unfortunately no statistics exist which would indicate relative peace-time consumption by product and by industry or department. Similarly, no records exist of how domestic

produced steel was handled. Both domestic and imported steel went to stockists and no statistics exist of how it was distributed. Some idea of the relation between peace and war time supplies may, however, be gained from the fact that whereas formerly the Indian Railways (mileage 41,156 miles) used to take 90,000 tons of rail for maintenance purposes only. The allotment last year was 40,000 tons. The railways, which (sic) are under the complete control of the Minister of Communications, now ask for a minimum of 58,000 tons. Because of difficulties in obtaining supplies, imports of steel into India have been nearly halved during the war period. Thus, today, the amount of steel available in India is virtually the same as the amount available in pre-war days. Direct war requirements take approximately 75% of current available supplies and railway and other needs have to be met from an allocation of less than 300,000 tons a year. This illustrates the measure of curtailment of normal uses to cater for military requirements.

5. The use and distribution of steel in India is controlled under a statutory quota system. This imposes a complete and drastic control over the transfer of all available supplies of steel including that produced in India in order to secure that military demands have full priority and that the balance is used to the best advantage for the prosecution of the war. It should be noted here that since July 1941 private imports of steel have be prohibited. Import requirements are now secured through the Indian Iron and Steel Control and every item

of steel indented for on the United States must pass the criterion of essentiality for the war effort. Every part of it comes either under direct or indirect war needs. The allocation of steel for the fourth quarter of 1941 (in tons per annum) is as follows:

		Tons	
Direct War Requirements	Director-General, Munitions Production	210,000	
	Engineer-in-Chief, Army Headquarters	340,000	
	Royal Indian Navy	43,000	
	Master General of Ordnance	153,000	
			746,000
Railway and other essential requirements	Railways	139,000	
	Commerce and Labour Departments	153,000	
			292,000
	Total		1,038,000

The essential needs, railway and other, of a country of 400,000,000 people cannot, however, for long be satisfied with less than 300,000 tons of steel per annum, and in the interests of the war effort itself imports must be increased.

6. The Government of India have indicated their minimum import requirements for the first six months of 1942 as 220,500 tons. Details are given in the statement which forms Appendix 'B'. The general purposes for which this steel is required can be summarized in two words - "War Effort". The control referred to above is such that nothing else is permitted. It would, of course, need an enormous amount of space to specify the actual purpose for which each element imported is to be directed. An attempt has, however, been made by the Government of India to

split up their requirements between direct military requirements and other requirements necessary in connection with the prosecution of the war. A broad indication of the use to which the steel will be put is also given. The present stock position is also indicated in the statement. In considering the stock position account must be taken of the shipping time-factor and the risk of shipping losses which is greater with the outbreak of war in the Far Eastern sphere.

7. The variety of war requirements which are now being produced is too great to enumerate in this note. Some particulars of munitions production are given in Appendix 'C'. In addition to munitions India produces a wide range of (a) engineering and (b) railway stores. Some figures showing the military demand for such stores up to the end of 1942 in the case of (a) and up to April 1942 in the case of (b) are given in Appendix 'D'. The variety and range of the war material which India is capable of producing is now wide. More can be done (in existing factories) provided that raw materials can be made available, and it must never be overlooked that if India's production is reduced or retarded the burden now shouldered by India would have to be taken over by the United Kingdom or other Empire or Allied countries. The problem is, therefore, to what extent can additional supplies of steel be made available from the United States. Imports into India during 1941 will probably be found to have been in the region of 100,000 tons. Thus, with the million odd tons produced locally, the total amount available is in the region of 1,100,000 tons. Of this not less than three-quarters of a million tons has been allocated to meet direct-war requirements. The balance of approx-

imately 300,000 tons has been made to suffice for other needs in a country consisting of 400,000,000 people. This 300,000 tons compares with 1,000,000 tons available for similar purposes in peace time. The import requirements of India for the first half of 1942 is, in round figures, quarter of a million tons. More will be required in the second half of 1942 if full advantage is to be taken of India's conversion capacity. It is the earnest hope of the Government of India that arrangements can be made to provide the country with not less than quarter of a million tons of steel for delivery ex works between now and the end of June. It is recognized that supply considerations may preclude any large supplies being made available during the next few months, but if a decision can be reached at once in regard to the demand for a quarter of a million tons immediate arrangements can be made for the placing of indents for delivery during the second quarter of the year and thereafter.

A. G. B. SYMON

Washington, D. C.
7th January, 1942

SECRET

CLASSIFIED PRODUCTION OF STEEL IN INDIA AS AT THE END OF DECEMBER 1941

Form	Tons per annum
Blooms and Billets	19,000
Heavy Structurals	77,000
Light "	120,000
Shell Bars	57,000
Rails & Accessories	96,300
Tin Plates	63,100
Black Sheets	114,000
Corrugated Sheets	132,000
Plates	77,000
Bars, flats & rods	226,000
Bolts, nuts & rivets	20,000
Wire - plain & barbed	16,200
Nails	14,400
Spring steel flats	6,000
	1,038,006

12 A M 2 DEC 1942

SECRET

APPENDIX A

The following figures show the state of the steel industry in the middle of 1939:-

Pig Iron	1,700,000 tons annual production.
Finished Steel	750,000 tons annual production.
Basic Open Hearth Furnaces	14
Acid " " "	4
Electric Furnaces.	8

India is now producing Steel Bar at the rate of 60,000 tons per annum (and has further capacity for this when required), bullet-proof plate to British specifications at 6,000 tons per annum, ship plate, boiler plate, armour-piercing shot, bullet-proof welding electrode of Austenitic type, alloy and chilled cast iron rolls, increasing quantities of steel castings, telegraph wire, barbed wire, high speed and alloy steels, gun steels, etc. The Government Ordnance Factory has been largely rebuilt as the result of the Chatfield Committee's recommendations and now has a new 2,000-ton Forging Press, a new 28" Rolling Mill, a new 10" Mill, and Electric Gun Heat Treatment plant. At Tata's, extensions include a new Bullet Mill, a Wheel and Tyre Mill and an Axle Plant. The new furnaces have come into operation and the production of usable finished steel is already of the order of 1,038,006 tons per annum. (See details below.)

Further expansions have been planned to come into operation by the middle of 1942. India's steel statistics will then become —

Pig Iron	2,000,000 tons annual production.
Finished Steel	1,250,000 tons annual production.
Basic Open Hearth Furnaces . . .	21
Acid " " "	6
Electric Furnaces.	14
Electric Alloy Furnaces	3
Electric High Frequency Furnace	1

A P P E N D I X B

SECRET

el	Six Months Anticipated Import Demand	War Requirements Direct	War Requirements Indirect	Purpose	Six Months Consumption Peace Time	Six Months Consumption War Time	Present Stock Position	No. of Weeks Consumption.
	2,500	1,000	1,500	military vehicles, military railways and engineering, etc.	3,000	7,500	Nil	Nil
	15,000	12,000	3,000	military requirements, barbed wire, nails, screws, telegraph wire (military posts and telegraph) Army track mesh, etc.	10,000	30,000	Nil	Nil
	8,000	3,000	5,000	military uses, packing military stores of all kinds.	6,000	15,000	500	2 weeks
	4,000	500	3,500	naval and shipping purposes, port trusts, steel works collieries, arsenals, engineering works, railways, etc.	2,500	4,000	750	6 weeks
	Nil							
	12,500	2,500	10,000	military equipment, packing of war food supplies, re-exported essential supplies to Empire countries and America, oils, nuts, etc., oil companies (for packing petrol, Benzine and Kerosene)	35,000	50,000	14,000	12 weeks
	2,500	Nil	2,500	railways	6,000	6,000	Nil	Nil
	2,500	Nil	2,500	steel works, rolling mills	2,500	3,200	Nil	Nil
	220,500	163,650	56,850	T O T A L	449,150	717,450		

APPENDIX B

SECRET

	Six Months Anticipated Import Demand	War Requirements		Purpose	Six Months Consumption: Peace Time	Six Months Consumption: War Time	Present Stock Position	No. of Weeks Consumption
etc.	25,000	25,000	Nil	nuts, bolts, rivets, railway accessories, wire, tools, etc.	10,000	45,000	Nil	Nil
	100,000	87,500	12,500	military buildings, floating docks, storage, tools, ship building, ship repairs, strategical bridges, and pontoons, railways.	200,000	300,000	30,000	2½ weeks
,	10,000	8,000	2,000	military equipment, lorries, boats, tools, oil well equipment, machine tools, railways, jute and textile mills, steel and engineering works and maintenance.	60,000	80,000	10,000	6 weeks
	500	400	100	munitions production railways	150	750	Nil	Nil
	5,000	5,000	Nil	Skelp for making tubes, military equipment, tanks, military buildings	85,000	130,000	Sheets 2,500 Skelp Nil	Sheets-1week Skelp Nil
	15,000	11,250	3,750	Military works, boilers (railways and general maintenance) ship repairs, oil wells	15,000	18,000	500	1½ weeks
	8,000	Nil	8,000	jute and textile baling and packing all military stores	8,000	12,000	4,000	17 weeks
s, etc.	10,000	7,500	2,500	military and naval building programmes, military lorries, railways, and general maintenance.	6,000	16,000	Nil	Nil

SECRET

APPENDIX C

Before the war India had six Ordnance Factories for the production of munitions proper, namely:

1. Metal and Steel Factory
2. Gun and Shell Factory
3. Rifle Factory
4. Gun Carriage Factory
5. Cordite Factory
6. Ammunition Factory

Outside of these factories, the main potentialities for the production of munitions is in the railway workshops. The engineering industry in India is generally on a jobbing basis and exists to maintain other industries and not for production in the accepted sense.

When war began India was engaged on a plan recommended by a Committee under the Chairmanship of Lord Chatfield which provided for the expansion and modernization of the six Ordnance Factories referred to above and the establishment of a seventh factory for the production of high explosives. This plan will reach full production by the end of 1941 except for some items which will come into production during 1942. Shortly after the outbreak of war, an addition was made to the Chatfield Plan to expand the production of S. A. A. from 16 million to 28 million rounds per month.

In the Autumn of 1940, a Ministry of Supply Mission under the Chairmanship of Sir Alexander Roger visited India, and as a result of the Mission's recommendations 20 new munitions projects

are in hand. In addition to important expansions of the existing factories, the Mission recommended the establishment of 7 new factories for (1) Bren Guns (2) Shell and Mortar Bombs (3) Fuses (4) Cartridge Cases (5) Small Arms Ammunition (6) Filling (7) Scientific Instruments respectively. All of these projects have been sanctioned and launched and are now in hand.

It has not been possible to take over the entire capacity of railway workshops as the essential needs of railways have to be met and this is particularly important in view of shipping difficulties. One railway workshop is fully employed on armoured carriers and one other is engaged to the extent of 80% on miscellaneous munitions and will be fully employed about November first. A third is being taken over completely for gun carriages from October 1st, 1941. All the remaining railway workshops are being used to capacity after satisfying essential railway needs having regard to the difficulties of a productive programme which involves delivery of inter-connected components and to the need for flexibility in handling railway demands.

Apart from railways, between two and three hundred non-government workshops are employed to the fullest practicable limit on munitions. All spare capacity in Government Mints is used and one canal workshop has been taken over completely.

The Ordance Factories are working to maximum capacity. Work is carried on by two-ten hour or three-eight hour shifts for six days a week in all cases, and for continuous processes seven days are worked. Off time is the minimum necessary for the care and maintenance of the plant and the restings of labour. Outside

of the Ordnance Factories, all major work firms are working six day and sometimes seven day weeks with two-ten hour shifts.

The main items for production are: Shell: 3 inch-20 hundred weight a.a.; 18 pounder H.E. and A.T. shot; 3.7 How. H.E.; 4.15 How. H.E.; 6 inch How. H.E.; Some 60 pounder H.E. are also made. SAA; Pyrotechnics; Grenades; Complete guns and carriages 3.7 How; Rifles and Bayonets; Light machine guns.

Projects now in hand will add:- Shell; 25 pounder H.E. and A.P. shot; 3.7 inch A.A. Shrapnel; 2 pounder and pounder A.P. shot; 3 inch Mortar bombs; 2 inch Mortar bombs S.A.A.; Scientific Instruments and Pyrotechnics; Increased quantities of complete guns and carriages; 6 pounder anti-tank guns, Light machine guns; Brens as well as Vickers Berthier.

The output for August, 1941, included:- Filled shell 78,000; Empty shell 127,000; S.A.A. 19 million rounds; Pyrotechnics 20,000 cartridges; Grenades 1,000, production having been held up by shortage of striker springs; Complete guns and carriages 3.7 How. 6 in addition to repair and maintenance work; rifles new and repaired 8800; Vickers Berthier guns new and repaired 155.

The output when all projects are completed will be:- Filled shell 327,000 a month, S.A.A. 40 million rounds a month; Pyrotechnics 50,000 a month; Grenades 27,000 a month; Complete guns and carriages 3.7 How. 124 a year; 6 pounder anti-tank 400 a year; Rifles 120,000 a year; Vickers Berthier guns 2400 rising to 4800 a year; Bren guns 3,000 a year.

Demands for the Army in India

Track and Sleepers Broad Gauge	150 miles.
Turnouts and Sleepers Broad Gauge	600
Railway Bridging in quantity for replacement of vital spans in event of damage	

SECRET

APPENDIX D

(a) Engineering.

Some indication of the size of the problem involved in the supply of engineering stores is given by the following figures which show the Military demand for some of such stores up to the end of 1942.

	Demands on India by overseas Forces.	Demands for the Army in India.	Totals.
Large fabricated Steel Workshops . . .Nos.	81	6	87
Steel garages. . . . . .Nos.	2,338	416	2,754
Hangars, 100 ft.Span . .Nos.	50	---	50
Nissen Huts . . . . . .Nos.	8,156	---	8,156
Roofing for Nissen Huts . . . . . .Nos.	2,490	---	2,490
10,000 Galls Water Tanks and Stag-ings . . . . . .Nos.	731	7	738
Cranes . . . . . .Nos.	211	62	273
Stock Span Bridges	796	77	873
Hamilton Bridges and Launching Gear . . .Nos.	50	36	86
365 Feet Steel Lattice Masts . . . .Nos.	36	---	36
Trench Shelters . . . .Nos.	10,200	9,200	19,400
Bridging Cribs	10,175	---	10,175
Large Petrol Storing Tanks . . . .Nos.	35	290	325
Decauville Ry.Track . .Miles	545	---	545
Corrugated Steel Sheets. . . . . .Tons	245,500	200	245,700

		Demands on India by overseas Forces.	Demands for the Army in India.	Totals
Ice Plants	Tons per day.	300	---	300
Elec. Generating Plants	K.W.	2,500	1,500	4,000
Screws for Wood	Gross	166,940	50,000	216,940
Copper Wire	Miles	3,126	2,000	5,126
Electric Cables	Miles	325	227	552
Machine Tools	Nos.	170	200	370
Diesel Engines	B.H.P.	4,000	4,000	8,000
Bars for Reinforced Concrete	Tons	111,080	24,270	135,350

Note: In addition to the figures shown under demands for the Army in India, very many contracts have been entered into in which the contractor erects material which he also provides.

(b) Railway--up to April 1942.

Demands on India by overseas Forces.

Tracks and Sleepers Medium Gauge and Standard Gauge	1,440 miles
Turnouts and Sleepers, Medium and Standard Gauge	2,560 miles.
Locomotives Medium Gauge	214
Coaching Stock Medium Gauge and Standard Gauge	140
Goods Rolling Stock Medium and Standard Gauge	10,560
Cranes Railway and Dock	23
Bridging (Railway)	183 Spans.

Signal and Ancillary Equipment in large quantities.

SECRET

Supplement NO. II

FREIGHT TRAFFIC
ON
RAILWAY SYSTEM OF INDIA

Report

by

A. C. B. SYMON

Secretary Indian
Purchasing Mission

January 17, 1942

INDIAN RAILWAY SYSTEM — SECRET

ASSESSMENT OF VOLUME OF FREIGHT TRAFFIC DIRECTLY CONNECTED WITH THE WAR EFFORT

Commodity	TONNAGE CARRIED (In Thousand Tons) 1938-39	1940-41	1941-42 (Estimated)	Per cent Increase 1940-41 over 1938-39	Per cent Increase 1941-42 over 1938-39	Per cent Directly Attributable to War Effort
Purely military traffic, i.e. relating solely to goods which were the property of Defence Department at time of booking.	460	2,184	4,177	375	809	100
Iron and Steel - wrought	2,425	2,517	2,418	4	0	80
Jute - grown & manufactured	1,584	1,389	1,828	-12	15	75
Cotton - manufactured	1,249	1,406	1,272	13	2	30
Cotton - raw compressed	1,224	1,396	1,303	14	6	25
Petrol - in bulk	388	386	400	0	3	33
Cement	0	2,054	2,396	6	24	75
Metallic ores	3,847	4,379	4,635	14	20	100
Wheat	2,364	2,848	3,830	20	62	50
Coal, Coke and Patent Fuel	23,989	27,291	27,734	14	16	60
Wood - unwrought	1,818	2,276	2,729	25	50	75
Other Commodities	14,070	12,848	14,171	-9	1	40
TOTAL	53,418	60,974	66,893	14	25	66.5 (44,459,000 tons)